

In the Claims

1-10. (Cancelled)

11. (New) An atherectomy apparatus, comprising:

an elongate catheter having a distal end and a proximal end and a lumen therebetween;

an atherectomy element distal the distal end of the catheter;

a shaft operably connected to the atherectomy element and extending through the lumen; and

a measurement device for measuring changes in the atherectomy device.

12. (New) The atherectomy apparatus of claim 11, wherein the atherectomy element operates by rotation, and wherein the measurement device measures the torque of the shaft.

13. (New) The atherectomy apparatus of claim 12, wherein the measurement device comprises

a first angle sensor disposed on the shaft;

a second angle sensor disposed on the shaft; and

a torsion spring disposed between and attached to the first and second angle sensors.

14. (New) The atherectomy apparatus of claim 11, wherein the measurement device creates a plurality of data, and wherein the apparatus further comprises an output device to present the data in a human-understandable format.

15. (New) The atherectomy apparatus of claim 14, wherein the output device comprises an acoustic signal generator that outputs the data as audible acoustic signals.

16. (New) The atherectomy apparatus of claim 15, wherein the output device comprises an optical display element that outputs the data as displayable signals.

17. (New) The atherectomy catheter of claim 11, wherein the measurement device is disposed at a proximal portion of the shaft.

18. (New) The atherectomy catheter of claim 11, wherein the measurement device operates by measuring energy in the shaft that occurs as a function of the external effects in the environment of the rotational element.

19. (New) The atherectomy apparatus of claim 11, wherein the sensor senses sound waves in the shaft and wherein the sensor is coupled to an output devices for making the sound waves audible.